ASH GROVE CEMENT COMPANY

"WESTERN REGION"

June 14, 1994

Mr. Fred Austin
Puget Sound Air Pollution Control Agency
110 Union Street, Suite 500
Seattle, WA. 98119-3958

Re: Notice of Violation #32263

Dear Mr. Austin,

Below is the additional information you requested June 1, 1994 to aid in the processing of Ash Grove's permit revision request.

(A) The method used by Ash Grove to measure the stack emissions provides a dry measurement by conditioning the gas ahead of the analyzers to remove moisture. To provide a dry measurement, the stack gas sample is cooled to condense the moisture and permit its removal from the analyzer gas stream.

(B) PSAPCA and PSD require measurements corrected to dry standard conditions and we follow those requirements. The NOx, SO2 and CO emissions are reported as required by PSD permit approval conditions #1, #2, and #3. All gases are corrected to 10% oxygen and dry standard dry conditions. PSAPCA's order #3382 cites emissions limits based on 10% oxygen.

(C) The results of SO2 Relative Accuracy Test Audits (RATA) conducted November 11, 1993 and March 21, 1994 have been corrected to dry standard conditions.

(D) As to the error inherent in using a constant stack moisture for extended periods of time for emission corrections to dry conditions, this moisture correction only affects the gas flow and pollutant mass flow calculations. If the permit is changed to only address annual mass flows, that would be the only calculation affected by the moisture content.
Two stack moisture constants, one for when the Raw Mill is operating and the other when the mill is down are used to correct to dry conditions. The DAS does distinguish between mill up/mill down moisture contents. The constants in the DAS are currently for 100% natural gas firing and are accurate within a few percent. They have allowed us to pass the RATA for mass flow. When changing from 100% natural gas to 100% coal firing, the stack moisture content decreases about 8 percent. This could cause a 8% relative error in determining the mass flow if the DAS moisture constants do not reflect the fuel mix. For example, if the (high) 100% natural gas moisture content is used when we are on 50% natural gas - 50% coal, the dry stack gas flow and the gaseous pollutant mass flow will be underestimated by about 4% because we used a too high moisture constant.

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(E) The equations submitted May 9, 1994 as Attachment 10 reflect measurements which are corrected to dry standard conditions and 10% oxygen. For clarification, I have included the equations used to in calculating stack flows and added an exponent symbol to the general formula in the modified attachment 10.

(F) For future Relative Accuracy Test Audits (RATA), Ash Grove will use analyzer Method 3A (oxygen concentration), Method 6C (sulfur dioxide), Method 7E (nitrogen dioxides) and Method 10 (carbon monoxide) when possible.

(G) Notice of Violation (NOV) No. 31785 issued May 6, 1994

(i) Emissions from the unsealed feed and discharge ends of the kiln results from minimal draft during the preheat and cool down phases of kiln start up or shutdown. Reduced draft is necessary to keep the heat in the kiln or risk overheating the empty vessels in the preheater tower. During these phases it is necessary to periodically rotate the kiln per a set schedule. See MAY 9 ,1994 letter, Appendix A; Kiln Start up/Shutdown and Maintenance Procedures KILN START UP- PREHEATING paragraph #2 and KILN SHUT DOWN paragraph #2. As the kiln is rotated, the material within is agitated. If this rotation schedule is not followed then excessive heating and damage to the kiln shell would occur.

The June 1, 1992 (NOV #28577) and May 6, 1994 (NOV #31785) were identical events which could not be avoided and did not represent a fundamental change.

(ii) The added ventilation from the kiln discharge shroud to the G-cooler dust collector as mentioned in the Fuller letter has been installed. PSAPCA was notified December 16, 1992 that this corrective action was complete.

Please advise me if you require any further information.

Sincerely yours,

Gerald J. Brown
Manager, Safety and Environment

Copy: KJR
HES
MC

Attachment 10
Modified to reflect dry conditions.

GENERAL FORMULA

((lbs/hr)/MW x 2.59x10E-9 x FLOW x 60) x (20.95 - 10/20.95 - 02%) = ppmc

where:

Moisture constants: 19% H2O - Raw Mill Running
10% H2O - Raw Mill Down

FLOW: DSCFM = (1 - %H2O/100) x SCFM

SCFM = ACFM(528/460+Temp) x (29.92+Pres.)/29.92

SO2
((40)/64.06 x 2.59x10E-9 x 102464 x 60) x (20.95 - 10/20.95 - 8.34)= **34ppm**

CO
((538)/28.01 x 2.59x10E-9 x 102464 x 60) x (20.95 - 10/20.95 - 8.34)= **1047ppm**

NOx (1 HR.)
((590)/46.01 x 2.59x10E-9 x 102464 x 60) x (20.95 - 10/20.95 - 8.34)= **700ppm**

NOx (24HR.)
((422)/46.01 x 2.59x10E-9 x 102464 x 60) x (20.95 - 10/20.95 - 8.34)= **500ppm**